Oct. 1, 1946. F. U. PAYNE 2,408,444

BOTTLE DISPENSING REFRIGERATOR

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Fig. 1.

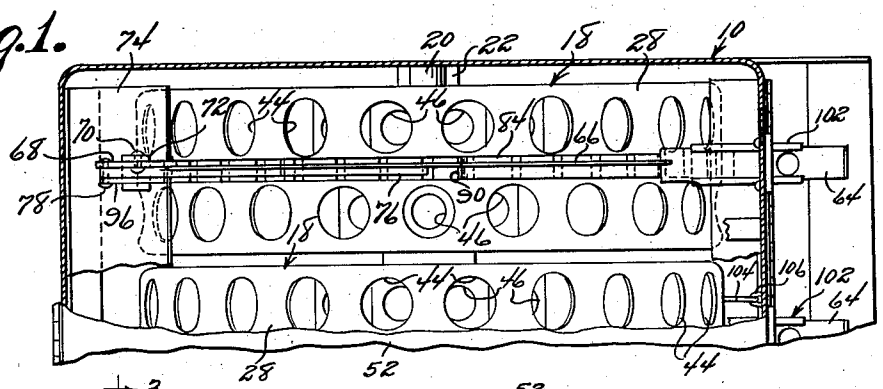
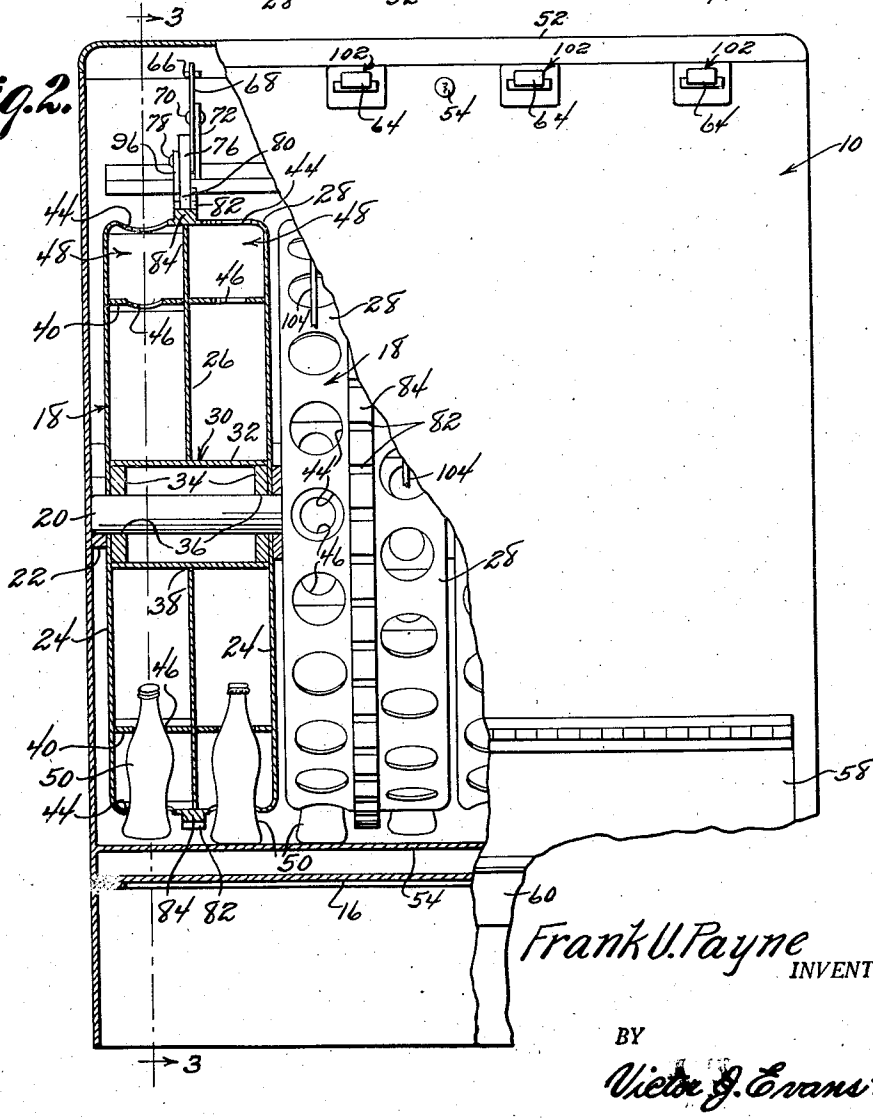


Fig. 2.



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Fig. 3.

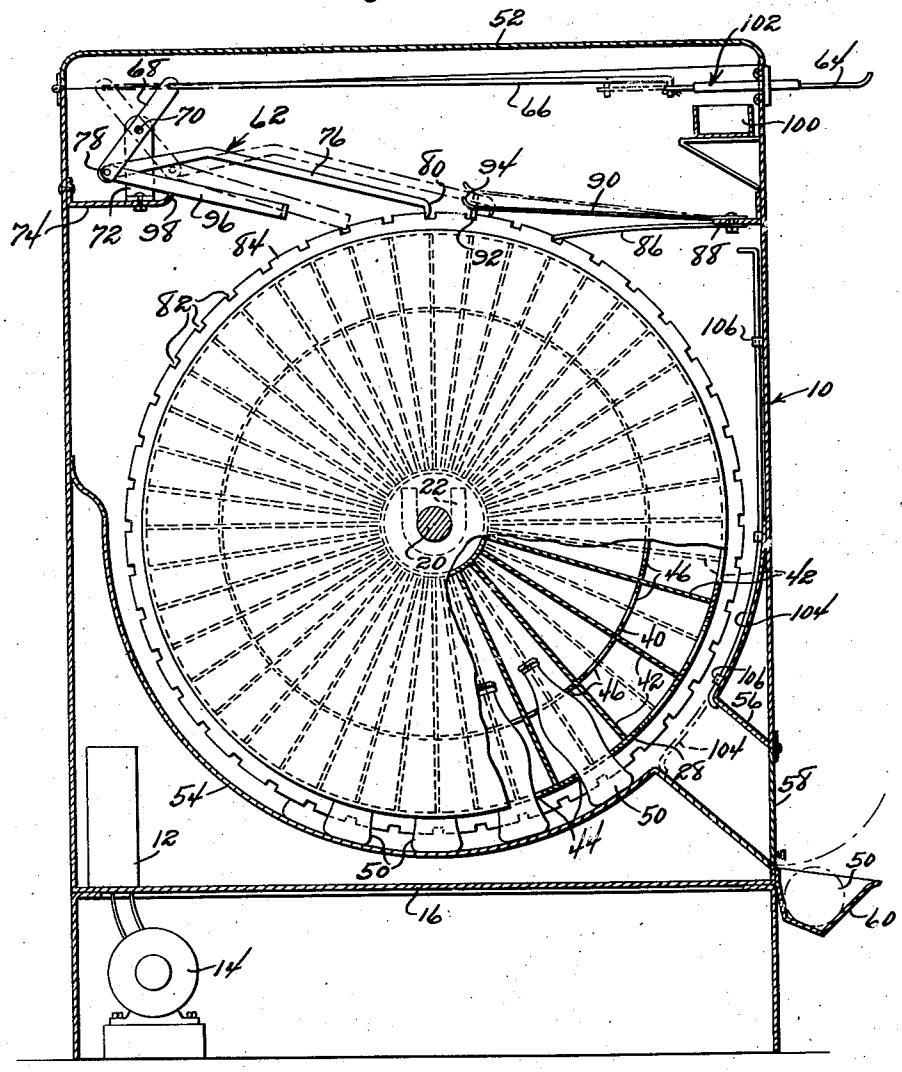
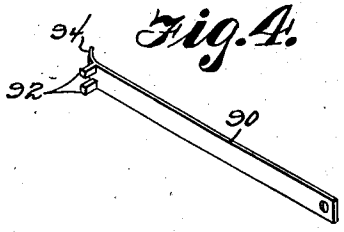


Fig. 4.



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BOTTLE DISPENSING REFRIGERATOR

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Application July 10, 1943, Serial No. 494,230

5 Claims. (Cl. 312—97.1)

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My invention relates to the cooling and dispensing of packaged goods, such as bottled beverages, and has among its objects and advantages the provision of an improved coin controlled dispensing refrigerator.

An object of my invention is to provide a refrigerator of the type described wherein bottles are arranged radially of a rotative wheel which is actuated through the medium of a coin control, wherein the wheel structure is such as to accommodate a relatively large number of bottles to the end that a refrigerator structure of relatively small over-all dimensions may be loaded with a large quantity of bottled stock.

In the accompanying drawings:

Figure 1 is a fragmentary and sectional top plan view of the invention.

Figure 2 is a front elevational view partly in section.

Figure 3 is a sectional view along the line 3—3 of Figure 2, and

Figure 4 is a perspective view of a latch member.

In the embodiment of the invention selected for illustration, I make use of a cabinet 10 provided with a conventional cooling apparatus 12 which may be operated through the medium of the usual power unit 14 located underneath the bottom wall 16 of the cabinet. Inside the cabinet 10 is mounted a plurality of bottle dispensing units 18. These units are in the nature of coaxial wheel structures but arranged for independent operation. All the units 18 are identical in construction and rotatably mounted on a common supporting shaft. Accordingly the description of one will apply to all.

A horizontal shaft 20 is supported inside the cabinet 10 by two U-shaped bearings 22, which bearings open upwardly so that the shaft may be dropped into position. The wheel unit 18 comprises two parallel side walls 24 and a dividing wall 26 located between and parallel to the side walls 24. All the walls 24 and 26 are fixedly connected at their perimeters by a peripheral wall 28.

Both side walls 24 are fixedly connected with a hub 30 rotatably mounted on the shaft 20. This hub comprises a tube 32 arranged concentrically of the shaft 20 and welded to plates 34 inserted in the ends of the tube. These plates are welded to the side plates 24 and are provided with openings 36 loosely receiving the shaft 20. The dividing wall 26 is provided with a central opening 38 to receive the tube 32.

A wall 40 is arranged concentrically of the axis of the wheel unit 18 and is of smaller diameter

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than the peripheral wall 28. The wall 40 is sectioned and is welded to the walls 24 and 26. In Figure 3, the wheel unit 18 includes radial walls 42. There are two sets of walls 42, the sets being respectively located in the spaces between the dividing wall 26 and the side walls 24. The walls 42 on one side of the dividing wall 26 are staggered with respect to the walls on the other side of the dividing wall. All the walls 42 extend from the tube 32 to the peripheral wall 28, and the sections of the wall 40 are subdivided transversely to accommodate the walls 42. All these wall parts may be welded into a unitary structure.

Two rows of bottle receiving openings 44 are provided in the peripheral wall 28, the openings in the respective rows being spaced one from the other circumferentially of the peripheral wall. Similar openings 46 are provided in the wall 40 and are arranged coaxially with the openings 44. Figures 2 and 3 illustrate the openings 46 as being of smaller diameter than the openings 44, the latter being of such size as to freely receive the body portions of bottles inserted neck first into the wheel unit. The neck formations of the bottles pass through the openings 46, with the exception of the larger diameter part of the necks, so that the bottles may be stacked radially in the wheel unit 18 and individually in the bottle compartments 48 defined by the walls 24 and 26 and the radial walls 42 and the circular walls 28 and 40.

Figure 1 illustrates the relative positions of the openings 44 on opposite sides of the dividing wall 26. The openings in each row are equally spaced one from the other and are offset from the openings in the other row distances equaling half of the distances between the openings in either row. The bottles 50 are loaded in the wheel structure 18 through the top of the cabinet 10, the latter being provided with a hinged cover top 52 which may be locked through the medium of any conventional lock means as indicated generally at 54 in Figure 2.

Since the bottles 50 are dispensed from the wheel 18 through rotation of the wheel about a horizontal axis, means is provided for holding the bottles in the wheel unit as the bottles enter the lower peripheral zone of the wheel unit. This means comprises a plate or track 54 arranged concentrically of the wheel unit 18 throughout approximately 180 degrees of its peripheral extent, but spaced slightly therefrom. Figure 3 illustrates the manner in which the bottles 50 ride on the track 54 so as to be restrained from dropping from the wheel unit 18, and to remain

in their respective chambers 48. Thus the bottles 50 are maintained in a predetermined order in the wheel unit 18, and all the bottles in the wheel unit are spaced equal distances apart circumferentially of the wheel unit, which spacing embraces both rows of bottles. A dispensing chute 56 is provided for receiving one bottle at a time from the wheel unit 18, as that bottle is brought into such axial alignment with the chute as to permit the bottle to drop therein. A hinge door 58 normally closes the discharging end of the chute 56, and a bottle dropping down the chute 26 falls into a trough 60, from which the bottle may be easily removed. The chute 56 is of such limited size and arrangement as to preclude unauthorized tampering with the wheel unit 18.

Means for imparting step by step rotation to the wheel unit 18 for bringing one bottle at a time into discharging alignment with the chute 56 comprises an actuating mechanism 62 which may be set in motion through the medium of a coin controlled slide 64. The specific coin control forms no part of the present invention since any coin controlled device employing a coin slide having the necessary free sliding movement is satisfactory. A rod 66 is pivotally connected at one end with the slide 64 and at its other end with one end of a lever 68. This lever is pivotally connected at 70 intermediate its ends with a post 72 mounted on a shelf 74 attached to the rear wall of the cabinet 10. An arm 76 is pivotally connected at 78 with one end of the lever 68 and includes a hook 80 at its free end selectively receivable in notches 82 in a flange 84 attached to the wheel unit 18 and lying in the plane of the dividing wall 26. The notches 82 are so spaced as to comprise the same number as the chambers 48, namely the number of bottles which may be loaded in the wheel unit 18. Bottles are dispensed from the wheel unit through counterclockwise rotation of the unit when viewing Figure 3. Such counterclockwise rotation is imparted to the wheel unit through advancement of the arm 76 to the dotted line position of Figure 3 and then moving the arm in a reverse direction to permit the hook 80 to drop into the notch next adjacent the notch previously occupied by the hook. This hook is of rounded contour at the end of the arm 76 as to cam easily from the slot occupied by the hook when the arm is in full line position of Figure 3.

Since the bottles drop from the wheel unit 18 through counterclockwise rotation of the latter, the left hand side of the wheel unit when viewed according to Figure 3 is generally the heavy side. Accidental clockwise rotation of the wheel unit is prevented by reason of a spring arm 86 attached to a support 88 and arranged to fall into the notches 82.

A wheel positioning spring arm 90 has one end attached to the support 88 and its other end provided with spaced fingers 92 arranged to fall into a notch 82 as the wheel unit 18 is rotated to a new bottle dispensing position. Normally the fingers 92 are pressed into one of the notches 82, which prevents the wheel unit 18 from rotation in a counterclockwise direction.

While the fingers 92 normally latch the wheel unit 18 against rotation, movement of the arm 76 to the dotted line position of Figure 3 causes the hook 80 to pass between the fingers 92 and engage the cam end 94 on the free end of the spring arm 90 and lift the fingers 92 clear of the flange 84.

Since the arm 86 latches the wheel unit 18 against clockwise rotation only, means are desirable for restraining the wheel unit from accidental counterclockwise rotation during the short period when the fingers 92 are lifted clear of the flange 84. This means comprises a latch bar 96 having one end pivotally connected with the connection 78 and normally resting on a flange 98 on the shelf 74. When the arm 76 is shifted to its dotted line position of Figure 3, the latch bar 96 moves to the dotted line position of this figure and its end drops into one of the notches 82 to restrain the wheel unit from accidental counterclockwise rotation. Thus, during a period of the dispensing operation, both the hook 80 and the free end of the latch bar 96 lie in notches 82. Since the latch bar 96 moves simultaneously with the arm 76, the latch bar permits unobstructed counterclockwise rotation of the wheel unit 18 as the arm 76 is pulled back to its full line position of Figure 3. A slight return movement of the arm 76 permits the fingers 92 to fall into the next notch in the flange 84 to positively latch the wheel unit 18 against accidental rotation.

A coin box 100 is mounted inside the cabinet 10 underneath the coin slide structure 102. The coin slide structure is so arranged that it is necessary to advance the coin slide 64 its full distance, as shown in dotted lines in Figure 3, to deposit the coin in the box 100 and to bring the actuating mechanism 62 to the dotted line position of Figure 3. When in this position, the mechanism is returned to its normal position by exerting a pull on the coin slide 64. Since the wheel unit 18 is loaded from a position above the wheel unit, a flexible gate wire 104 is slidably mounted in guides 106 attached to the front wall of the cabinet 10 and to the chute structure 56 to be pushed across the discharging chute 56 and prevent bottles from falling into the chute as the wheel unit is rotated during the filling operation. After filling the wheel unit, one bottle only will drop therefrom when the gate wire 104 is pulled back to its normal full line position of Figure 3.

Without further elaboration, the foregoing will so fully explain my invention, that others may, by applying current knowledge, readily adapt the same for use under various conditions of service.

I claim:

1. In a bottle dispensing refrigerator, the combination of a refrigerated chamber having an outlet, a bottle dispensing wheel mounted for rotation about a horizontal axis inside said chamber, said wheel being provided with a hub, and circular side walls on the hub, a circular dividing wall, and a peripheral wall about the aforementioned walls, and a wall concentrically arranged between the hub and the peripheral wall, said latter wall and the peripheral wall having openings therein, the openings of the latter wall being smaller than those of the peripheral wall, and staggered radial walls dividing the spaces between the aforementioned walls into compartments for loosely supporting bottles arranged endwise with respect to the axis of the wheel and equally spaced one from the other circumferentially of the wheel, said outlet being located at a low point with respect to said wheel, a bottle track about the lower circumferential extent of the wheel to hold the bottles in the wheel but terminating at said outlet to cause bottles to drop into the outlet as they are moved beyond the track, a notched flange on the wheel and means engaging the notches of the flange for rotating the wheel step

by step to bring one bottle at a time to a position beyond said track.

2. The invention described in claim 1 wherein said notches in the flange are equal in number to the bottle supporting compartments, means successively receivable in said notches to restrain the wheel from accidental rotation, means for releasing the wheel from said restraining means and means successively receivable in said notches for imparting rotation to the wheel.

3. The invention described in claim 1 wherein said notches in the flange are equal in number to the bottle supporting compartments, means successively receivable in said notches to restrain the wheel from accidental rotation, means for releasing the wheel from said restraining means and means selectively receivable in said notches for imparting rotation to the wheel, said last mentioned means including a coin slide, a hook successively receivable in said notches and an operating connection between the hook and said coin slide.

4. The invention described in claim 1 wherein said notches in the flange are equal in number to said compartments, a first spring arm successively receivable in said notches to restrain the wheel from rotation in one direction, a second spring arm having fingers successively receivable in said notches to restrain the wheel from rotation in either direction, a hook successively receivable in said notches and shaped for engagement with said second spring arm to lift said

fingers clear of their receiving notch, a wheel latch for successive reception in said notches to restrain the wheel from rotation in a second direction reversely of the holding action of said first spring arm, a pivoted lever having a common pivotal connection with said hook and said wheel latch to advance the hook one notch at a time and to bring said wheel latch into one of said notches, and a coin slide means operatively connected with said lever to impart pivotal movement thereto to actuate the hook and said wheel latch.

5. In a dispensing refrigerator, the combination of a refrigerated chamber having an outlet, a bottle dispensing wheel mounted for rotation in said chamber, means for mounting bottles in said wheel with their bottoms toward the periphery and the necks toward the center of the wheel, a notched flange on the wheel, there being the same number of notches as the bottle holding capacity of the wheel, means successively engaging in said notches for imparting step-by-step rotation of the wheel, a spring arm engaging the notches to prevent accidental rotation of the wheel, in a clockwise direction, a second spring arm engaging the notches to prevent accidental rotation of the wheel in a counterclockwise direction, and a releasable latch bar for engaging in the notches to restrain rotation of the wheel in either direction, and means for releasing the latch bar.

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